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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,915	11/22/2000	Tatsuya Shimoda	107286	3150

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

CHAN, ALEX H.

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,915

Applicant(s)

SHIMODA ET AL.

Examiner

Alex H Chan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. The amendment to specification, claims and drawings filed on December 19th, 2003 is herein acknowledged.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the clads as claimed in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. **Claims 1-6, 8-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,200,631 to Austin et al (hereinafter Austin) in view of U.S. Patent No. 6,114,737 to Tonai or U.S. Patent No. 6,366,375 B1 to Sakai et al (hereinafter Sakai).

Regarding claim 1, Austin discloses a plurality of optical signal transmission substrate (e.g. 12A of Fig. 1) for transmitting an optical signal (Col. 4, line 59), comprising an optical signal transmission area (e.g. circuit board of Fig. 1, Col. 4, line 28) where at least one of a light emitting element (e.g. 13A of Fig. 1) for sending the optical signal to other optical signal transmission substrates (e.g. to 12D of Fig. 1) or a light receiving element (e.g. 15A of Fig. 1) for receiving the optical signal from other optical signal transmission substrates (e.g. from 12A of Fig. 1) is located so as to be capable of sending or receiving the optical signal in a direction substantially perpendicular (Fig. 1, Fig. 4, Col. 2, line 54 & Col. 3, line 13) to a surface of the substrate.

However, Austin does not explicitly disclose wherein clads are provided at boundaries of the plurality of optical signal transmission areas. Tonai discloses wherein clads (i.e. absorption layer) are provided at boundaries of the plurality of optical signal transmission areas (e.g. PIN-PD, Fig. 1A and 1B and Col. 4, lines 36-49) for preventing crosstalk. Likewise, Sakai discloses clads (116 of Fig. 12) are provided at boundaries of the plurality of optical signal transmission areas (Col. 15, lines 22-32). Accordingly, one of the ordinary skilled in the art would have been motivated to employ clads at boundaries of optical signal transmission areas for preventing crosstalk (Col. 15, lines 29-30, Sakai). Therefore, it would have been obvious to one artisan from the same endeavor at the time the invention was made to incorporate clads at boundaries of the plurality of optical transmission areas because this helps to prevent crosstalk as taught by Sakai.

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Regarding claims 2 and 5, Austin discloses an optoelectronic package wherein the optical signal transmission substrate (e.g. 12(c) of Fig. 1) is used as it is held between the other optical signal transmission substrates (e.g. between 12(b) and 12(d) of Fig. 1), and wherein the optical signal transmission area (e.g. circuit board of Fig. 1, Col. 4, line 28) comprises a transmittable window exhibiting light transmittability (e.g. holes, 35 of Fig. 2B and optical via. 100 of Fig. 6) at the position where the optical signal transmitted between the other optical signal transmission substrates passes through (e.g. by allowing optical signals to be transmitted from 39 to 43 of Fig. 2B & Col. 7, lines 9-19 & Fig. 4).

Regarding claim 3, Austin discloses an optoelectronic package wherein the electrodes (e.g. conductive elastomer electrical connectors, 20 of Fig. 1, Col. 4, lines 23-25 and electrical connection, 22 and 23 of Fig. 1) at least at a pair of the edges of the substrate (27 and 29 of Fig. 1).

Regarding claims 4, 8-9, Austin discloses all limitations as claimed in claim 1, and further discloses an optical signal transmission device (Fig. 1 and Fig. 4) composed by laminating a plurality of the optical signal transmission substrates as stated in claim 1 in such a manner that the optical transmission areas of the respective substrates overlap one another (e.g. (e.g. stack, 11 of Fig. 1 or transmitter 67 of substrate 67 overlaps receiver 64 of substrate 71, Fig. 4), wherein the light receiving element (e.g. 15D of Fig. 1) is located in any one of the optical

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signal transmission substrates (e.g. 12C of Fig. 1) so as to be opposed (e.g. 15D, the receiving element is opposed to 13D, the light emitting element, Fig. 1) to the light emitting element provided in any one of the other optical signal transmission substrates (e.g. 12A of Fig. 1 and Col. 8, lines 9-42).

Regarding claim 6, plural sets of the light emitting element and the light receiving element for transmitting the optical signal are located along the optical axis (e.g. optical path, Col. 2, lines 51-55 & Col. 10, lines 21-30) of one optical signal.

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Austin in view of Tonai or Sakai as discussed above, and further in view of U.S. Patent No. 5,796,714 to Chino et al (hereinafter Chino).

Regarding claim 7, Austin in view of Tonai or Sakai fails to disclose an adhesive layer between the optical signal transmission substrates, the adhesive layer being composed of an adhesive agent and electrodes for electrically connecting the electrodes of both substrates. Chino discloses an electrode structure (adhesive layer) (16 of Fig. 1) between the optical signal transmission substrates (e.g. the first substrate, 12 of Fig. 1 and the second substrate, 11 of Fig. 1), the electrode structure being composed of ultraviolet curable resin (adhesive agent) and electrodes (32 and 36 of Fig. 1) for electrically connecting the electrodes of both substrates (Col. 6, lines 9-24). Accordingly, one of ordinary skill in the art would have been motivated to

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incorporate such electrode structure, located between substrates, being composed of adhesive agent to provide a vertical-cavity surface emitting laser for realizing large capacity optical communication by transmitting optical information in parallel through a plurality of laser device arranged in an array (Col. 1, lines 11-17). Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified the optoelectronic package of Austin in view of Tonai or Sakai with an adhesive layer between the transmission substrates, the adhesive layer being composed of an adhesive agent and electrodes for connecting the electrodes of the substrates because Chino suggests that a vertical-cavity surface module can be realized for large capacity optical communication and also provide excellent emission efficiency (Col. 25, lines 4-10).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex H Chan whose telephone number is (703) 305-0340. The examiner can normally be reached on Monday to Friday (8am to 6pm EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Alex Chan
Patent Examiner
January 18th, 2004



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600